REMARKS

Reconsideration of the application is respectfully requested for the following reasons:

1. New Rejection of Claims 3, 4, 7, 8, 11, 12 Under 35 USC §112, 2nd Paragraph–**Request for Withdrawal of Finality of Official Action**

Initially, it is respectfully noted that the **new** rejection under 35 USC §112, 2nd Paragraph, could not possibly have been necessitated by the last amendment, since the rejection is on the basis that essential structural cooperative relationships of elements have been omitted, and since no elements were omitted by the last response. **In fact, the newly rejected claims were NOT amended by the last response**. The same rejection could have been, but was not, made in any of the previous three Official Actions.

It is improper and unfair to introduce a new completely rejection, clearly not necessitated by amendment in a final Office Action. Therefore, withdrawal of the finality of the last Official Action is respectfully requested.

In addition, the rejection is respectfully traversed on the grounds that:

a. Claims 3, 7, and 11 specifically recite that the rotor forms a spoke or part of the hub or rim of the wheel of a vehicle. "Forming" or being "part of" is clearly a physical connection. Unless the Examiner wishes the Applicant to recite the inherent connection between a spoke and a wheel, or a hub and a wheel, it is not clear to the Applicant what physical connection could possibly be missing from these dependent claims.

b. Claims 4, 8, and 12 recite that the rotor is part of the brake system of a vehicle. According to the Examiner, these claims should have recited "the fixed part or piece of the wheel, which in combination with the rotor will effectively produce stopping force. Again, it is not clear to Applicant what is meeting. A brake rotor does not interact with a fixed part of the wheel to produce stopping force.

> Instead, the brake rotor spins with the wheel (which is why it is called a "rotor" and not a "stator," and is acted on by the brake shoes to produce stopping force. Claim 1 unambiguously the relationship between the rotor and stator of the motor, and claims 4, 8, and 12 specifically recite that the rotor is "part of" the brake system. While Applicant might be willing to add a specific structural connection in the interest of clarity, it appears to the Applicant that the claim is unambiguous in its present form.

Since the basis for the new rejections is not understood, it is hoped that the Examiner will provide specific suggestions, or provide a more detailed explanation of why the limitations are considered to be ambiguous, should the Examiner desire to maintain the rejection. It is noted that MPEP §2172.01, cited by the Examiner, concerns elements described **in the specification** as essential to the invention. Nowhere does the original specification describe a particular spoke/wheel relationship, rotor/brake shoe relationship, and so forth as being **essential**, as the term is used in MPEP §2172.01. To the contrary, these relationships are well-known or inherent in the definitions of "spoke," "brake," and so forth, and are un-essential enough that the features are recited only in dependent claims. Consequently, the rejection of claims 3, 4, 7, 8, 11, and 12 under 35 USC §112, 2nd Paragraph, is believed to be improper and withdrawal of the rejection is respectfully requested.

2. New Rejection of Claims 1, 2, 5, 6, and 9-10 Under 35 USC §103(a) in view of U.S. Patent Nos. 4,028,573 (Terrone), 5,959,382 (Dauwalter) and 4,868,443 (Rossi)

As with the rejection under 35 USC §112, 2nd Paragraph, it is respectfully submitted that this rejection was not necessitated by the last amendment. The applicant re-arranged the order of some elements in claim 1, but did not add any limitations to overcome the previous rejection. Therefore, the amendments made in the previous response could not have necessitated the present new rejection, and it is therefore improper and unfair to make the current Official Action final.

In addition, the rejection is respectfully traversed on the grounds that the Terrone, Dauwalter, and Rossi patents, whether considered individually or in any reasonable combination, fail to disclose or suggest using a flat metal part of an apparatus to be driven as the rotor of an induction motor system, much less using slots in the wheel to indicate the position of the rotor. Instead:

a. the Terrone patent merely discloses a cylindrical-type armature with slots for holding the armature coils,

b. the slots between the teeth in the rotor of Dauwalter assist in positioning of the motor, but are not used to detect the position of the motor, and

c. the alleged "slots" of Rossi are actually spaces between stator coils, rather than parts of a rotor.

It is of course recognized that if a prior art *structure* is capable of the claimed *function*, then the claim is anticipated. However, the prior art does not disclose or suggest any such structure. To the contrary, none of the prior art structures is capable of the claimed slot detection, and there is no possible reason for combining the rotor structures described in the three references to obtain such a structure *or* function.

The Terrone patent not only fails to disclose a flat induction motor with slots that can be used for position detection, but the necessary energization of the coils in the slots of Terrone would in fact make it **impossible** to detect the position of the slots for commutation purposes in the manner claimed. The Dauwalter patent simply teaches a stepper motor, which of course cannot include armature coils in the notches, while Rossi does not even remotely suggests detection of the position of notches in an induction motor.

Once again, it appears that the Rossi patent has been **mis-interpreted** as teaching use of the spokes of a driven part to detect rotor position. The rotor of Rossi is not an induction rotor made up of flat metal part with spokes, as claimed, but to the contrary is simply a permanent magnet rotor having an annular shape, as depicted in Fig. 4 of Rossi. The stator of Rossi, on the other hand, is made up of a plurality of overlapping coils. While this might

form a structure that appears to have spokes with slots therebetween, as depicted in Fig. 2 of the Rossi patent, it does not resemble the claimed invention.

Furthermore, the proposed **combination** of references is basically a combination of totally different types of motors, for reasons that could not possibly have been suggested by the references themselves, and which make no sense for at least the following reasons:

a. The claimed invention is a rotor in the form of a flat metal part having slots extending therethrough, whereas the rotor of Rossi consists of permanent magnets in an annular configuration, the rotor of Dauwalter is in the form of at toothed wheel, and the "rotor" of Terrone is in the form of a wound armature with coil-holding slots;

b. The claimed invention detects the position of the slots in order to determine the position of the motor, whereas Rossi detects motor position based on the magnetization lines in the magnet rotor, the trapezoidal geometry of the stator coils (which results in the so-called "spokes"), and a cam disc attached to the rotor, the Dauwalter patent fails to disclose any specific rotor position detection, much less detection of slot positions, and the Terrone patent discloses a wound armature rather than an induction rotor whose position can and needs to be detected by detecting the position of features on the motor.

Thus, the Rossi patent, cited for its disclosure of the claimed slot detection, does not disclose <u>any</u> features of the claimed invention, and clearly does not suggest modification of the rotor of Terrone to include the claimed position detection, whether or not taking into account the functionally non-analogous stepper notches of Dauwalter. Instead, position detection in the motor of Rossi is accomplished with the assistance of a cam disc (22) rotating in synchronism with the magnet rotor. In a rather complex arrangement described in col. 9, line 5 to col. 10, line 14, the cam disc (22) of Rossi provides a "screening effect" that enables the exact position of the rotor to be determined so as to permit proper selection and timing of coil excitation. This is clearly not analogous to the claimed position detection

by slot detection. **As explained previously, the Rossi patent cannot possibly suggest use of slots in a rotor for position detection since Rossi's rotor does not include slots, and position detection is based on the geometry of the stator coils, annular permanent magnet rotor, and a "cam disc" attached to the rotor, and not on a particular structural feature of the rotor.** Since the Terrone and Dauwalter patents clearly do not disclose such position detection for controlling an induction motor, the claimed invention could not possibly have been apparent to the ordinary artisan based on the proposed combination.

The Examiner is reminded that it is improper, in considering whether to combine references, to base a rejection on a combination which has no basis in the references themselves, while completely ignoring the intended purposes and functions of the primary reference, is clearly and improper hindsight rejection. As stated in **MPEP 2143.02** (page 2100-111):

> *If proposed modification would render the prior art invention being modified **unsatisfactory for its intended purpose**, then there is no suggestion or motivation to make the proposed modification*" (citing *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)).

Also as stated in **MPEP 2143.02**:

> *If the proposed modification or combination of the prior art would **change the principle of operation of the prior art invention being modified**, then the teachings of the references are not sufficient to render the claims prima facie obvious* (citing In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)...*The court reversed the rejection holding the "suggested combination of references would require a **substantial reconstruction and redesign** of the elements shown in [the primary reference] **as well as a change in the basic principle under which the [primary reference] construction was designed to operate**" 123 USPQ at 352.* (See also, MPEP 2141.02, p. 2100-107 "**A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention** (emphasis in the original).

It is respectfully submitted that the proposed substitution of Dauwalter's stepper motor structure and/or or Rossi's tachometer structure for the **coil wound armature** of Terrone represents exactly the type of substantial reconstruction and redesign, in direct opposition to the teachings of the reference being modified, that is prohibited by MPEP 2143.02. One of ordinary skill in the art could not possibly have combined such disparate structures in the

absence of any express or implied reasons taught by the references themselves. **It is not reasonable to conclude that the claimed induction rotor, which operates without a permanent magnet *or* coil, should be suggested by a combination of permanent magnet and coil wound rotors, with no apparent relationship to either an induction rotor or to each other.**

Because none of the references cited in the application to date, *whether considered individually or in any reasonable combination*, discloses or suggests use of a driven part of an apparatus, such as a wheel, as an induction motor rotor with position-detection slots, as claimed, in order to eliminate the need for differentials, torque converters, drive chains, and/or other parts of the drive train of a conventional vehicle, the slots further reducing the weight of the motor and enhance its appearance, withdrawal of the rejection of claims 1, 2, 5, 6, and 9-10 under 35 USC §103(a) is again respectfully requested.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,

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